

Aerosol Retrieval and Atmospheric Correction Algorithms for EPIC

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EPIC is a multi-spectral imager onboard planned Deep Space Climate ObservatoRy (DSCOVR) designed for observations of the full illuminated disk of the Earth with high temporal and coarse spatial resolution (10 km) from Lagrangian L1 point. During the course of the day, EPIC will view the same Earth surface area in the full range of solar and view zenith angles at equator with fixed scattering angle near the backscattering direction. This talk will describe a new aerosol retrieval/atmospheric correction algorithm developed for EPIC and tested with EPIC Simulator data. This algorithm uses the time series approach and consists of two stages: the first stage is designed to periodically re-initialize the surface spectral bidirectional reflectance (BRF) on stable low AOD days. Such days can be selected based on the same measured reflectance between the morning and afternoon reciprocal view geometries of EPIC. On the second stage, the algorithm will monitor the diurnal cycle of aerosol optical depth and fine mode fraction based on the known spectral surface BRF. Testing of the developed algorithm with simulated EPIC data over continental USA showed a good accuracy of AOD retrievals (10-20%) except over very bright surfaces.